

CLAIM AMENDMENTS

IN THE CLAIMS

This listing of the claims will replace all prior versions, and listing, of claims in the application or previous response to office action.

1. (Previously Presented) A unicellular organism for producing a diterpene, comprising:

a first exogenous nucleic acid having the sequence of SEQ ID NO: 1 and encoding a geranylgeranyl pyrophosphate synthase, the first nucleic acid under the control of a first promoter operable in said organism; and

a second exogenous nucleic acid having the sequence of SEQ ID NO: 361 and encoding a diterpene synthase, the second nucleic acid under the control of a second promoter operable in said organism.

2-3. (Cancelled)

4. (Previously Presented) The unicellular organism of claim 1, wherein said first promoter comprises an inducible promoter or a constitutive promoter.

5. (Original) The unicellular organism of claim 4, wherein said inducible promoter is selected from the group consisting of GAL1, CUP1 and MET3.

6. (Previously Presented) The unicellular organism of claim 4, wherein said constitutive promoter is selected from the group consisting of alcohol dehydrogenase (ADH) promoter and phosphoglycerine kinase (PGK) promoter.

7. (Previously Presented) The unicellular organism of claim 1, wherein said second promoter comprises an inducible promoter or a constitutive promoter.

8. (Original) The unicellular organism of claim 7, wherein said inducible promoter is selected from the group consisting of GAL1, CUP1 and MET3.

9. (Previously Presented) The unicellular organism of claim 7, wherein said constitutive promoter is selected from the group consisting of alcohol dehydrogenase (ADH) promoter and phosphoglycerine kinase (PGK) promoter.

10. (Previously Presented) The unicellular organism of claim 1, wherein said unicellular organism further comprises a third exogenous nucleic acid encoding a soluble form of a 3-hydroxy-3-methylglutaryl-CoA reductase under control of a third promoter operable in said organism.

11. (Previously Presented) The unicellular organism of claim 10, wherein said third promoter comprises an inducible promoter or a constitutive promoter.

12. (Original) The unicellular organism of claim 11, wherein said inducible promoter is selected from the group consisting of GAL1, CUP1 and MET3.

13. (Previously Presented) The unicellular organism of claim 11, wherein said constitutive promoter is selected from the group consisting of alcohol dehydrogenase (ADH) promoter and phosphoglycerine kinase (PGK) promoter.

14. (Previously Presented) The unicellular organism of claim 10, wherein said unicellular organism further comprises a fourth exogenous nucleic acid having the sequence of SEQ ID NO: 399 under control of a fourth promoter operable in said organism.

15. (Previously Presented) The unicellular organism of claim 1, wherein said first nucleic acid encoding said geranylgeranyl pyrophosphate synthase is present on a chromosome of said unicellular organism.

16. (Original) The unicellular organism of claim 1, wherein said unicellular organism is a yeast.

17. (Original) The unicellular organism of claim 10, wherein said unicellular organism is a yeast.

18. (Original) The unicellular organism of claim 14, wherein said unicellular organism is a yeast.

19-28. (Cancelled).

29. (Previously Presented) A unicellular organism for producing a diterpene or diterpene precursor, comprising:

a first exogenous polynucleotide encoding a polypeptide having an amino acid sequence of SEQ ID NO: 22 of a geranylgeranyl pyrophosphate synthase, the first polynucleotide under the control of a first promoter operable in said organism; and

a second exogenous polynucleotide encoding a polypeptide having an amino acid sequence of SEQ ID NO: 383 of a diterpene synthase, the second polynucleotide under the control of a second promoter operable in said organism.

30-31. (Cancelled).

32. (Original) The unicellular organism of claim 29, wherein said organism is a yeast.

33-79. (Cancelled).

80. (Previously Presented) The unicellular organism of claim 10, wherein said unicellular organism further comprises a fourth exogenous nucleic acid encoding a sterol uptake control transcription factor under control of a fourth promoter operable in said organism.

81. (Previously Presented) The unicellular organism of claim 29, wherein said first promoter comprises an inducible promoter or a constitutive promoter.

82. (Previously Presented) The unicellular organism of claim 81, wherein said inducible promoter is selected from the group consisting of GAL1, CUP1 and MET3.

83. (Previously Presented) The unicellular organism of claim 81, wherein said constitutive promoter is selected from the group consisting of alcohol dehydrogenase (ADH) promoter and phosphoglycerine kinase (PGK) promoter .

84. (Previously Presented) The unicellular organism of claim 29, wherein said second promoter comprises an inducible promoter or a constitutive promoter.

85. (Previously Presented) The unicellular organism of claim 84, wherein said inducible promoter is selected from the group consisting of GAL1, CUP1 and MET3.

86. (Previously Presented) The unicellular organism of claim 84, wherein said constitutive promoter is selected from the group consisting of alcohol dehydrogenase (ADH) promoter and phosphoglycerine kinase (PGK) promoter .

87. (Previously Presented) The unicellular organism of claim 29, wherein said unicellular organism further comprises a third exogenous polynucleotide encoding a soluble form of 3-hydroxy-3-methylglutaryl-CoA reductase under control of a third promoter operable in said organism.

88. (Previously Presented) The unicellular organism of claim 87, wherein said third promoter comprises an inducible promoter or a constitutive promoter.

89. (Previously Presented) The unicellular organism of claim 88, wherein said inducible promoter is selected from the group consisting of GAL1, CUP1 and MET3.

90. (Previously Presented) The unicellular organism of claim 88, wherein said constitutive promoter is selected from the group consisting of alcohol dehydrogenase (ADH) promoter and phosphoglycerine kinase (PGK) promoter .

91. (Previously Presented) The unicellular organism of claim 87, wherein said unicellular organism further comprises a fourth exogenous polynucleotide having the sequence of SEQ ID NO: 399 and under control of a fourth promoter operable in said organism.

92. (Previously Presented) The unicellular organism of claim 87, wherein said unicellular organism further comprises a fourth exogenous polynucleotide encoding a sterol uptake control transcription factor under control of a fourth promoter operable in said organism.

93. (Previously Presented) The unicellular organism of claim 29, wherein said first polynucleotide encoding said geranylgeranyl pyrophosphate synthase is present on a chromosome of said unicellular organism.

94. (Previously Presented) The unicellular organism of claim 87, wherein said unicellular organism is a yeast.

95. (Previously Presented) The unicellular organism of claim 80, wherein said unicellular organism is a yeast.

96. (Previously Presented) The unicellular organism of claim 91, wherein said unicellular organism is a yeast.

97. (Previously Presented) The unicellular organism of claim 92, wherein said unicellular organism is a yeast.

98. (Previously Presented) The unicellular organism of claim 14, wherein said fourth nucleic acid and promoter are operable to confer to said organism an increase in sterol metabolic flux as compared to native sterol metabolic flux levels.

99. (Previously Presented) The unicellular organism of claim 80, wherein said fourth nucleic acid and promoter are operable to confer to said organism an increase in sterol metabolic flux as compared to native sterol metabolic flux levels.

100. (Previously Presented) The unicellular organism of claim 91, wherein said fourth polynucleotide and promoter are operable to confer to said organism an increase in sterol metabolic flux as compared to native sterol metabolic flux levels.

101. (Previously Presented) The unicellular organism of claim 92, wherein said fourth polynucleotide and promoter are operable to confer to said organism an increase in sterol metabolic flux as compared to native sterol metabolic flux levels.

102. (Previously Presented) The unicellular organism of claim 1, wherein said first exogenous nucleic acid and first promoter are contained in a vector.

103. (Previously Presented) The unicellular organism of claim 1, wherein said second exogenous nucleic acid and second promoter are contained in a vector.

104. (Previously Presented) The unicellular organism of claim 10, wherein said third exogenous nucleic acid and third promoter are contained in a vector.

105. (Previously Presented) The unicellular organism of claim 14, wherein said fourth exogenous nucleic acid and fourth promoter are contained in a vector.

106. (Previously Presented) The unicellular organism of claim 80, wherein said fourth exogenous nucleic acid and fourth promoter are contained in a vector.

107. (Previously Presented) The unicellular organism of claim 29, wherein said first exogenous polynucleotide and first promoter are contained in a vector.

108. (Previously Presented) The unicellular organism of claim 29, wherein said second exogenous polynucleotide and second promoter are contained in a vector.

109. (Previously Presented) The unicellular organism of claim 87, wherein said third exogenous polynucleotide and third promoter are contained in a vector.

110. (Previously Presented) The unicellular organism of claim 91, wherein said fourth exogenous polynucleotide and fourth promoter are contained in a vector.

111. (Previously Presented) The unicellular organism of claim 92, wherein said fourth exogenous polynucleotide and fourth promoter are contained in a vector.

112. (Previously Presented) The unicellular organism of claim 1, further comprising a first enhancer operable to enhance transcriptional activation of the first nucleic acid.

113. (Previously Presented) The unicellular organism of claim 112, further comprising a second enhancer operable to enhance transcriptional activation of the second nucleic acid.

114. (Previously Presented) The unicellular organism of claim 10, further comprising a first enhancer operable to enhance transcriptional activation of the first nucleic acid.

115. (Previously Presented) The unicellular organism of claim 114, further comprising a second enhancer operable to enhance transcriptional activation of the second nucleic acid.

116. (Cancelled)

117. (Previously Presented) The unicellular organism of claim 29, further comprising a first enhancer operable to enhance transcriptional activation of the first polynucleotide.

118. (Previously Presented) The unicellular organism of claim 117, further comprising a second enhancer operable to enhance transcriptional activation of the second polynucleotide.

119. (Previously Presented) The unicellular organism of claim 87, further comprising a first enhancer operable to enhance transcriptional activation of the first polynucleotide.

120. (Previously Presented) The unicellular organism of claim 119, further comprising a second enhancer operable to enhance transcriptional activation of the second polynucleotide.

121. (Cancelled)

122. (Previously Presented) The unicellular organism of claim 1, wherein the first and second promoters are the same promoter.

123. (Previously Presented) The unicellular organism of claim 10, wherein at least two of the first, second and third promoters are the same promoter.

124. (Previously Presented) The unicellular organism of claim 14, wherein at least two of the first, second, third and fourth promoters are the same promoter.

125. (Previously Presented) The unicellular organism of claim 80, wherein at least two of the first, second, third and fourth promoters are the same promoter.

126. (Previously Presented) The unicellular organism of claim 29, wherein the first and second promoters are the same promoter.

127. (Previously Presented) The unicellular organism of claim 87, wherein at least two of the first, second and third promoters are the same promoter.

128. (Previously Presented) The unicellular organism of claim 91, wherein at least two of the first, second, third and fourth promoters are the same promoter.

129. (Previously Presented) The unicellular organism of claim 92, wherein at least two of the first, second, third and fourth promoters are the same promoter.

130-131. (Cancelled)

132. (Previously Presented) The unicellular organism of claim 1, wherein a single exogenous nucleic acid comprises both the first and second exogenous nucleic acids.

133. (Previously Presented) The unicellular organism of claim 132, wherein the single exogenous nucleic acid comprises at least one internal ribosome binding site.

134. (Previously Presented) The unicellular organism of claim 29, wherein a single exogenous polynucleotide comprises both the first and second exogenous polynucleotides.

135-141. (Cancelled)